

REMARKS

This application has been reviewed in light of the Office Action dated November 19, 2008. Claims 1, 3, 6-10, 12, 15-19, 21, 24-27, 30-34, 36-41 and 57-59 are pending in this application, of which Claims 1, 10, 19, 32-34 and 36-41 are in independent form. Claims 1, 9, 10, 18, 19, 27, 32-34, 36-41 and 57-59 have been amended to define still more clearly what Applicants regard as their invention. Favorable reconsideration is respectfully requested.

In the outstanding Office Action, Claims 10, 12, 15-18, 32, 36, 37 and 58 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicants have carefully reviewed the claims, and, without conceding the validity of the rejections, have amended Claims 10 and 37 to specify that the claimed apparatus comprises hardware, Claim 36 to recite a memory, and Claim 32 to recite still more clearly that the claimed system comprises the recited terminals. It is believed that these rejections have been obviated, and, therefore, their withdrawal is respectfully requested.

Claims 1, 3, 6, 10, 12, 15, 19, 21, 24, 31-34, 36-41 and 57-59 were rejected under 35 U.S.C. § 103(a) as being obvious from U.S. Patent 5,889,952 (Hunnicuttt et al.) in view of U.S. Patents 6,848,106 (Hipp), 6,920,475 (Klots et al.) and 7,136,903 (Phillips et al.); Claims 7-9, 16-18, and 25-27, as being obvious from *Hunnicuttt* in view of *Hipp*, *Klots* and *Phillips*, and further in view of U.S. Patent 5,550,968 (Miller et al.); and Claim 30, as being obvious from *Hunnicuttt* in view of *Hipp*, *Klots* and *Phillips*, and further in view of U.S. Patent Application Publication 2003/0028653 (New, Jr., et al.).

Applicants submit that the independent claims, together with their dependent claims, are patentably distinct from the cited prior art for at least the following reasons.

As discussed in the specification, the present invention relates to an information processing apparatus (IPA) and its control method which control access by multiple applications to various resources of a computer – storage devices, display devices, recording devices and other connected devices – managed by the operating system (OS) running on the computer, without revising the OS or any of the applications (Abstract, para. [0007]).

According to preferred embodiments of the present application, the IPA pre-determines access control information for each computer resource, which is not defined in the OS. When an application requests access to a specific computer resource, then, the IPA intercepts the request before it reaches the OS, determines whether the requested access is allowed based on the pre-determined access control information, and relays the request to the OS only if the requested access is allowed (Fig. 4).

Specifically, different computer resources can be accessed differently. For example, data saved in a storage device may be viewed, modified, deleted, copied, emailed, etc., data shown on a display device may be captured, etc., and data delivered to a recording device may be printed, etc. (Fig. 9). Accordingly, the IPA allows different types of access to be associated with respective computer resources.

Furthermore, since the IPA operates between an application and the OS, it can implement extended access rights not yet defined in the OS for better access control. For example, for copying a file, there could be barely any access control enforced by the OS except that as long as a file is readable, it can be copied ([para. [0249]). However, an extended access right could say that a file cannot be copied if a series of basic access operations have been performed (para. [0250] through [0252], for example). Accordingly, for each type of access associated with a computer resource, the IPA defines an extended access right represented by a series of basic access operations (Fig. 3). To implement these extended access rights, the IPA constantly monitors the performance of these basic access operations (para. [0221]).

In addition, the IPA keeps track of resource usage and availability as applications request access to computer resources, perform the requested access to the computer resources, and release the computer resources when the requested access is over (Fig. 5).¹

Claim 1 recites an information processing method of controlling access to computer storage, display, recording and other resources managed by an operating system in a computer, the method comprising, among other features, “a storing step of storing a management table... provid[ing], for each computer resource managed by the operating system, access right information comprising access rights, each represented by a series of

¹/ It is to be understood that the scope of the claims is not limited by the details of this or any other embodiment that may be referred to.

basic operations for accessing computer resources, and conditions under which the access rights are validated; ... a monitoring step of monitoring all the basic operations necessary for accessing computer resources; a registration step of, when the process secures access to the first computer resource, registering a correspondence between the process and the first computer resource in a storage medium; a cancellation step of, when the process releases the first computer resource, cancelling the correspondence between the process and the first computer resource; a determination step of: ... examining the monitoring result to see whether is a series of basic operations associated with the process and the first computer resource which, when considered together, is consistent with one of the access rights.”

The features recited above are not believed to be disclosed or suggested in *Hunnicutt*, *Hipp*, *Klots*, and *Phillips*, considered separately or in any permissible combination.

As Applicants understand, first of all, none of the cited references discloses an IPA which controls the access by multiple clients to all kinds of computer resources managed by an OS, including storage, display, recording and other devices, managing for each computer resource different types of access specific to that computer resource. *Hunnicutt* discusses using an access check system to cache access control lists for disks, files, and other storage volumes (*see* col. 1, lines 33-35). *Hipp* does not concern the management of computer resources. *Klots* does not concern the access to computer resources by multiple clients, as each server accesses its own resources to perform

requested services (*see Abstract*). Similar to *Hunnicutt, Phillips* involves storage devices only. Therefore, the storing step of Claim 1 is missing from the four references, considered separately or in any permissible combination.

Furthermore, none of the cited references discloses an IPA which defines extended access rights, each represented by *a series of basic access operations*, and which, while constantly monitoring the performance of all the basic access operations, determines whether to grant any of the extended access rights based on whether the corresponding series of basic access operations have been performed. Accordingly, the determining step of Claim 1 is also missing from the four references, considered separately or in any permissible combination.

In addition, while conceding that *Hunnicutt* and *Hipp* do not disclose the registration step of Claim 1, the Office Action states that *Klots* does. Applicants respectfully disagree. As discussed above, according to preferred embodiment of the present invention, resources of a computer managed by the OS running on the computer are shared by multiple client applications/processes. It is therefore necessary for the IPA of the present invention to keep track of the usage/availability of each computer resource for systematic sharing.

Totally unlike the method of Claim 1, *Klots* concerns a distributed computing environment where clients send work requests to a director, which evaluates the resource requirements of the work requests and forwards the work requests to servers which are available and have appropriate resources. Specifically, as discussed in the

Amendment of January 22, 2008, each server possesses fixed resources, and it is the only party that accesses these resources. On the one hand, each server does not need to keep track of the usage/availability of these resources by multiple clients. On the other hand, there is no discussion of the use of these resources by various applications/processes or the management of such uses. Therefore, *Klots* does not disclose the registration step and cancellation step of Claim 1. *Phillips* is also not believed to remedy this deficiency.

Accordingly, for at least the reasons noted above, Claim 1 is believed patentable over *Hunnicut*, *Hipp*, *Klots*, and *Phillips*, considered separately or in any permissible combination.

Independent Claims 10, 19, 32-34 and 36-41 recite features similar in relevant respects to those discussed above with respect to Claim 1 and therefore are also believed to be patentable over the four references for at least the reasons discussed above.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. All of the independent claims are therefore believed patentable over the cited art.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

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